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The transformation of the data centre

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– Gartner Research

The common perception of data centres is that they are shrouded in secrecy.

Design journalist and editor Sophie Harper discusses the importance of planning with Chris Patrick, Tom Bishop, and Ikenna Nwimo, to uncover the best ways to ensure the success of any new hotel build.

Despite this they can be quite easy to spot. There are the reflective or tinted windows, the high level of associated security, the lack of obvious branding, and the fact that there are very few people coming in or out. As a result, they have often tended to be unpopular with local planners. After all, historically they haven't encouraged a sense of community, neither have they been responsible for employing many local people. They also have a reputation for being unsustainable – using huge amounts of power, while their diesel-generated support systems pump out emissions.



However, as more of the objects that we use everyday become 'smart', there is no doubt that the nation will require greater storage capacity.

The connotations around the building type need to be transformed. As Daniel Wright, Director of the leading construction consultancy Concert confirms:

At that point Wright was working on 2-4MW centres which by current standards, he admits, is quite small. "Now there are sites that have 100MW of IT power," he says.

“ Twenty years ago data centres tended to be on the outskirts of cities and towns in areas where land was cheap and power was available. They were often housed in industrial buildings that had been built speculatively by developers because they already had planning. This reduced the programme for the fit out and the data centre was designed to fit that building. They looked almost deliberately modest so people didn't wonder too much what was going on in there. ”

- Daniel Wright, Director at Concert -



So how has the market changed?

Well the short answer is that we are producing far more data.

CISCO has forecasted, for example, that the number of devices connected to IP networks will be more than three times the global population by 2022.

This has led many companies to outsource their data management and shift to the cloud, which in turn has led to the expansion of co-location data centres and hyper-scaling.

Meanwhile slowly but surely the image of data centres is beginning to shift.

‘From a planning point of view the industrial application of data centres is perhaps not quite universally understood,’ admits Rennie Dalrymple, Concert’s Managing Director.

‘But a big change in the last decade is that data centres are a much more mainstream asset class now – some of the major pension institutions are investing in them.’

Improved technology also means that centres are becoming more efficient. Five years ago data centres were often designed with average energy densities as high as 5kW/rack. Today new designs are regularly built with averages of more than 8kW/rack, which is making storing information less expensive. Costs going down has meant that operators are building bigger centres to achieve economies of scale.

Edge computing

Many commentators have predicted that the advent of hyperscaling ...

driven by the big five market players: Google, Apple, Facebook, Microsoft and Amazon

with its need for space as well as sustainable power, combined with the increase of data created by the Internet of Things, will produce edge computing. The idea being that smaller, local centres, perhaps the size of a shipping container, will be able to process information created by new technologies and products such as driverless cars and reduce issues around latency. According to a report published by Gartner Research, by the end of 2021, 'more than 50 per cent of large enterprises will deploy at least one edge computing use case to support IoT or immersive experiences, versus less than 5 per cent in 2019.'

While this isn't a prospect Concert dismisses, the consultancy's feeling is that it remains some way off in the distant future.

'There are so many definitions around. What is edge computing? I don't think 5G, for instance, will be deployed as rapidly as everyone thinks,' says Dalrymple. **'I suspect it's going to happen in a slow, almost piecemeal way. There will be people pushing enhanced 4G before 5G comes on line.'**

Data centre requirements



There are some requirements that data centres will always need. Good fibre, for example, and access to large amounts of power.

As Concert's Director Tom Bishop points out: **'System losses are easier to manage if you're in a very stable grid area. It means when you come to do your fault analysis you're not going to be using your generators. That makes authorities a lot more comfortable from an air emissions point of view.'**

Unsustainability has become an increasingly important concern of course, with many centres located close to the coast so air coming off the sea can be used for cooling. There are also examples of centres being situated near to waste energy plant facilities.

A sign of the future?

Perhaps a sign of the near future can be found in Dagenham. Opening in April 2020, the Japanese telecoms company NTT Group's new data centre is capable of up to 60MW of IT power in a 24,000 sq m space. Arguably more importantly, this isn't a building that is being hidden away. In fact, it has been welcomed by the local authority.

According to Wright: **'They wanted to create a digital hub, mixed use development in that area with the data centre acting as an anchor. So, they have space for other elements, such as start-up businesses.'**

Rather than skulking in the shadows hoping to avoid detection, this is an example of a data centre being as a tool for regeneration and job creation.

Security is still hugely important, of course, but the NTT building will be branded like a conventional workplace.

As Barking and Dagenham's Council leader Darren Rodwell told the London Evening Standard, the development **'will bring thousands of jobs for local people at all levels – from construction workers and carpenters to set designers and film and TV producers. It's another sign that Barking and Dagenham is booming.'**

When discussing data centres, it is sometimes too easy to get lost down a wormhole of technology, to emphasise the potential of 5G or increased miniaturisation. NTT's scheme at Dagenham illustrates that they have a hugely important social role to play in the future too.

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